[](http://www.google.com/imgres?q=christmas+snow+globes+cartoon&hl=en&gbv=2&biw=1024&bih=506&tbm=isch&tbnid=xESCdZAGqNF_5M:&imgrefurl=http://www.cartoonfactory.com/free-stuff/cartoons/holidays/christmas/snow/content/CH-Snow-globe-001_large.asp&docid=KBJipf_AsTAFRM&imgurl=http://www.cartoonfactory.com/free-stuff/cartoons/holidays/christmas/snow/content/bin/images/large/CH-Snow-globe-001.jpg&w=312&h=395&ei=hkznTsT3NKjw0gGP4syGCg&zoom=1)**Benzoic Acid Snow Globe**

By [Anne Marie Helmenstine, Ph.D.](http://chemistry.about.com/bio/Anne-Marie-Helmenstine-Ph-D-7815.htm), About.com Guide

**Snowglobe Materials**

* baby food jar or ointment jar (~4 oz)
* 1 g benzoic acid
* water
* beaker or pyrex measuring cup
* hot plate or microwave or coffee maker
* stirring rod or spoon
* hot glue gun
* decoration to glue to the bottom of the snow globe, like a small plastic toy
* forceps or tweezers
* electrical tape (optional)

**Procedure:**

1. In a 250 ml flask, stir 1 g benzoic acid into 75 ml of water.
2. Heat the solution to dissolve the benzoic acid. You do *not* need to boil the water.
3. Put down a bead of hot glue on the inside of the jar lid (or you can put it on the bottom of a clean, dry jar if you don't plan to invert the sealed jar).
4. Use tweezers or forceps to position your decoration in the glue.
5. While the glue is cooling, take a look at your benzoic acid solution. As it approaches room temperature, the benzoic acid will precipitate out of solution to form "snow".
   * NOTE: The rate of cooling affects the 'snow'. Slow cooling produces fine crystals. Quick cooling produces something more like snowballs than snowflakes.
6. Pour the room-temperature benzoic acid solution into the glass jar.
   * NOTE:Fill the jar as full as possible with water. Air pockets will cause the benzoic acid to form clumps.
7. Put the lid on the jar. If desired, seal the jar with hot glue or electrical tape.
8. Gently shake the jar to see the pretty snow!

**Analysis:**

1. What is solubility?
2. We like to say “like dissolves like,” what does this mean?
3. Why wouldn’t you be able to dissolve the benzoic acid at room temperature?
4. What are three techniques used to increase the rate of solubility?

**Grading:**

Appearance of the snow: Does the snow actually look like snow?

**1 2 3**

*no yes*

Snowfall rate: Does the snow fall at an appropriate rate?

**1 2 3**

*no yes*

Bubbles: Is the “air” in the snow globe free of bubbles?

**1 2 3**

*no yes*

Appearance of the figure in the globe: Does the object you added to the snow globe look nice? Is it firmly stuck to the bottom of the jar?

**1 2 3**

*no yes*

Does the snow globe leak after being placed upside down for a 24-hour period?

**-2 2**

*yes no*

**Total Score: \_\_\_\_\_\_\_**

**Maximum Score: 14**

# Final Grade: \_\_\_\_\_\_\_